MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017/2018

BFN3144 – FINANCIAL DERIVATIVES

(All sections / Groups)

6 MARCH 2018
9.00 A.M. – 11.00 A.M.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **4** pages. There is a total of **4** questions.
2. Answer **ALL** questions.
3. Marks are shown at the end of each question.

Answer all questions in the answer booklet provided.

QUESTION 1 (25 marks)

(a) Based on the statistics of Bursa Malaysia Derivatives Berhand (BMDB) below, answer the following questions.

	Crude Palm Oil Futures		KLCI Options		Options on Crude Palm Oil Futures	
Month	**Mth Volume**	**Mth-End Open Interest**	**Mth Volume**	**Mth-End Open Interest**	**Mth Volume**	**Mth-End Open Interest**
May/17	966,550	209,679	1,706	413	1,850	4,800
Jun/17	879,070	220,630	1,720	754	7,400	11,200
Jul/17	851,419	207,136	1,504	729	4,400	13,000
Aug/17	1,094,771	212,091	1,172	741	3,480	15,080
Sep/17	1,035,571	221,212	1,469	837	1,607	13,486
Oct/17	999,288	232,906	1,607	344	4,320	17,736

Source: Bursa Malaysia Derivatives, 2017

(i) Name the underlying assets of the three products listed in the table. (3 marks)

(ii) Which is the most important and active product for BMDB? (5 marks)

(iii) Differentiate between volume and open interest. (6 marks)

(iv) If you were the fund manager of Vivo Fund Management and you are managing RM40 million worth of portfolio, what risk do you face? Which product(/s) to use to hedge against the risk? What is (/are) your strategy (/ies)? (5 marks)

(b) What are the expected intrinsic values when the option is at the moneyness below?
(i) At-the-money (2 marks)
(ii) In-the-money (2 marks)
(iii) Out-of-the money (2 marks)

QUESTION 2 (25 marks)

(a) You are given the following two 30-day calls of THER Bhd:

RM8.50 THER call @ RM0.15
RM9.50 THER call @ RM0.05

Continued...

Imagine that you are moderately bullish about the stock performance of THER over the next 30 days. Under your expectation, there will be a moderate increase in stock prices. You are skeptical to long the stock and rather want to use options to benefit from the expected increase in stock price while reducing your downside risk.

Suggest an appropriate options strategy and fill in the payoff table below. You are also required to draw the payoff diagram.

Stock price at maturity	Profit/loss to 8.50 call @ 0.15	Premium	Profit/loss to 9.50 call @ 0.05	Premium	Value of the combined position
7.00					
8.00					
8.50					
8.60					
9.00					
9.50					
10.00					

(18 marks)

(b) There are two options listed at Bursa Malaysia Derivatives. Explain which style exercise - American or European that these two options are having. What is the difference between them? (7 marks)

QUESTION 3 (25 marks)

(a) There are two parties - buyer and seller involved in options. The risk involved for these two parties are different for an option. Discuss the difference in risk they faced. (6 marks)

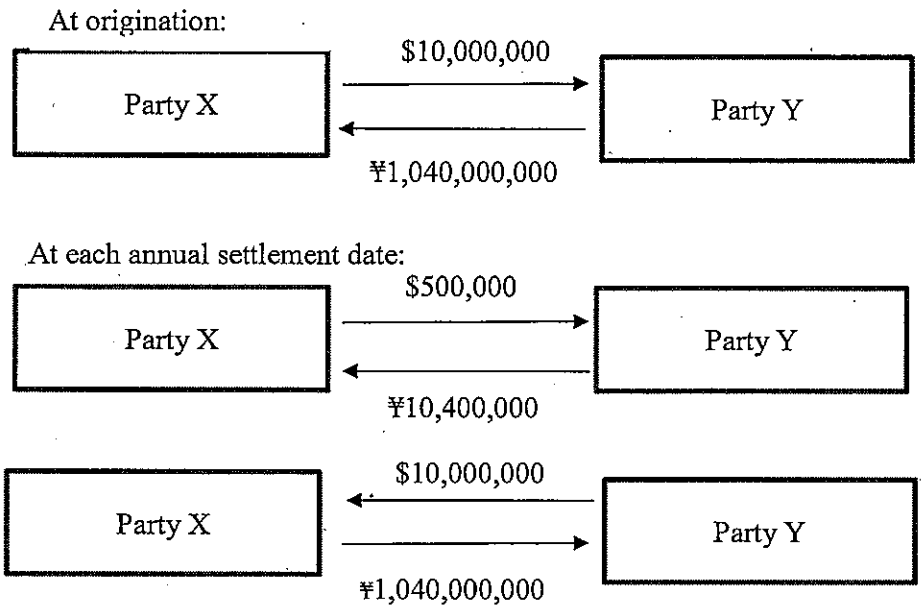
(b) Given the following information, use Black-Scholes Options Pricing Model to calculate the fair value of a put option.

Current stock price = RM40.00
Exercise price = RM35.00
Interest rate = 12% per annum
Maturity of the option = 180 days
Standard deviation = 30%
Dividend = 0
[Assume 1 year =360 days] (19 marks)

Continued...

QUESTION 4 (25 marks)

(a) Given the diagram below, explain the relevant swap contract. Is there any difference in the exchange of cash flow compared to interest rate swap?



(10 marks)

(b) "Suppose Onderland Bank lends US$500,000 to Siri Incorporation for a period of 8 years. Knowing that Siri Incorporation carries significant default risk as a borrower, Onderland Bank is thinking how to manage its risk".

Given the illustration above, explain how Onderland Bank can manage its credit risk. What is the best derivative instrument to be used? Explain the features of the instrument.

(10 marks)

(c) Warrants are listed under Bursa Malaysia. Explain what warrants are. (5 marks)

End of Page

Table: Cumulative Normal Distribution

d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)
-3.00	.0013	-1.58	.0571	-0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
-2.95	.0016	-1.56	.0594	-0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
-2.90	.0019	-1.54	.0618	-0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
-2.85	.0022	-1.52	.0643	-0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
-2.80	.0026	-1.50	.0668	-0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
-2.75	.0030	-1.48	.0694	-0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
-2.70	.0035	-1.46	.0721	-0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
-2.65	.0040	-1.44	.0749	-0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
-2.60	.0047	-1.42	.0778	-0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
-2.55	.0054	-1.40	.0808	-0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
-2.50	.0062	-1.38	.0838	-0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
-2.45	.0071	-1.36	.0869	-0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
-2.40	.0082	-1.34	.0901	-0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
-2.35	.0094	-1.32	.0934	-0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
-2.30	.0107	-1.30	.0968	-0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
-2.25	.0122	-1.28	.1003	-0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
-2.20	.0139	-1.26	.1038	-0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
-2.15	.0158	-1.24	.1075	-0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
-2.10	.0179	-1.22	.1112	-0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
-2.05	.0202	-1.20	.1151	-0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
-2.00	.0228	-1.18	.1190	-0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
-1.98	.0239	-1.16	.1230	-0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
-1.96	.0250	-1.14	.1271	-0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
-1.94	.0262	-1.12	.1314	-0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
-1.92	.0274	-1.10	.1357	-0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
-1.90	.0287	-1.08	.1401	-0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
-1.88	.0301	-1.06	.1446	-0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
-1.86	.0314	-1.04	.1492	-0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
-1.84	.0329	-1.02	.1539	-0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
-1.82	.0344	-1.00	.1587	-0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
-1.80	.0359	-0.98	.1635	-0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
-1.78	.0375	-0.96	.1685	-0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
-1.76	.0392	-0.94	.1736	-0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
-1.74	.0409	-0.92	.1788	-0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
-1.72	.0427	-0.90	.1841	-0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
-1.70	.0446	-0.88	.1894	-0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
-1.68	.0465	-0.86	.1949	-0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
-1.66	.0485	-0.84	.2005	-0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
-1.64	.0505	-0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
-1.62	.0526	-0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
-1.60	.0548	-0.78	.2177	0.04	.5160						

This table shows the probability [N(d)] of observing a value less than or equal to d. For example, as illustrated, if d is -.24, then N(d) is .4052.